

### **AMENDMENTS TO THE CLAIMS**

1. **(ORIGINAL)** A hydration monitor comprising a temperature sensor for measuring a subject's core body temperature and a processor, the processor being arranged to accept measurements from the temperature sensor and calculate a hydration level in dependence on changes in the measured core body temperature.
2. **(CURRENTLY AMENDED)** A hydration monitor as claimed in claim 1, comprising an earpiece **worn on the ear** and a remote unit, the temperature sensor being positioned in the earpiece for measuring the core body temperature via the subject's tympanic membrane.
3. **(ORIGINAL)** A hydration monitor as claimed in claim 2, wherein the temperature sensor comprises a thermopile.
4. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 2, wherein the earpiece further comprises a transmitter, the remote unit including the processor, output means and a receiver, the earpiece being arranged to communicate measurements to the processor via the transmitter and receiver, the processor being arranged to provide an indication of the hydration level via the output means.
5. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 4, wherein the transmitter and receiver communicate wirelessly.
6. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 4, wherein the transmitter and receiver are transceivers.

7. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 4, wherein the remote unit comprises a selected one of: a wristwatch, a personal digital organiser, a mobile telephone, a personal computer or medical diagnostic and/or monitoring apparatus.
8. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 4, wherein the output means includes one or more of a display and a speaker.
9. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 1, further comprising a memory for storing hydration level and/or core body temperature over time.
10. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 1, wherein the processor is arranged to determine a hydration level by the following formula: 
$$\frac{[(\text{core body temperature current} - \text{core body temperature normal}) \times \text{subject's weight}]}{(\text{factor of ambient compensation} \times 100)}$$
11. **(ORIGINAL)** A hydration monitor as claimed in claim 10, wherein the factor of ambient compensation is between 0.1 and 0.23 and is determined in dependence on the temperature of the environment surrounding the subject.
12. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 1 arranged to operate repeatedly at predetermined time intervals.
13. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 1, wherein the processor is arranged to generate an alarm upon determination of a hydration level below a predetermined level.

14. **(CURRENTLY AMENDED)** A method of measuring hydration of a subject in a hydration monitor comprising the steps of:
- a. measuring an initial core body temperature of the subject;
  - b. measuring a subsequent current core body temperature of the subject;
  - c. subtracting the initial core body temperature from the subsequent core body temperature;
  - d. multiplying by the subject's weight; **and**;
  - e. dividing by a factor of ambient compensation, **thereby obtaining an indication of the subject's hydration level;**
  - f. providing output indicative of the subject's hydration level from the hydration monitor to the subject.**
15. **(ORIGINAL)** A method as claimed in claim 14, wherein the measurements are taken from the subject's tympanic membrane.
- 16.-17. **(CANCELED)**
18. **(PREVIOUSLY PRESENTED)** A computer program for measuring hydration of a subject encoded on a computer readable medium and including:
- (a) computer code means for obtaining an initial core body temperature of the subject;
  - (b) computer code means for obtaining a subsequent current core body temperature of the subject;
  - (c) computer code means for subtracting the initial core body temperature from the subsequent core body temperature;
  - (d) computer code means for multiplying by the subject's weight;
  - (e) computer code means dividing by a factor of ambient compensation; and,
  - (f) computer code means for outputting an indicator of hydration of the subject in dependence on the results of operations (a)-(e).

19. **(NEW)** A hydration monitor including:
  - a. a wearable temperature sensor for measuring a subject's core body temperature;
  - b. a processor calculating the subject's hydration level from the measured core body temperature, without reliance on any measured electrical properties of the subject's body.
20. **(NEW)** The hydration monitor of claim 19 wherein the wearable temperature sensor includes an earpiece wearable on the ear.
21. **(NEW)** The hydration monitor of claim 20 wherein the only measurements obtained from the subject are obtained from the earpiece.
22. **(NEW)** The hydration monitor of claim 19 wherein the processor calculates the subject's hydration level in reliance on changes in measured core body temperature over time.